The Diffusion of Greco-Roman Medicine into the Middle East and the Caucasus

Edited by

John A. C. Greppin
Emilie Savage-Smith
and
John L. Gueriguian

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MEDIEVAL ARMENIAN MEDICINE AND ITS RELATIONS TO GREEK AND ARABIC MEDICINE

STELLA VARDANIAN
THE MASHTOTS MATENADARAN, YEREVAN

In the year 405, Mesrop Mashtots created the Armenian alphabet, thus laying the foundation for ancient Armenian literature. Mashtots, along with Sahak Partev and the disciples of both, developed a vast activity as the translators of ancient Greek and Syriac texts, beginning with the translation of the Bible first from the Syriac Peshitta, during 405-408, and then from the Greek original, during the years 432-435 (Arevshatyan 1973; Zarbhanalian 1839: 484). During the first period of activity until the year 472, Armenian scholars translated the works of various Greek and Syriac authors, mainly apologists for Christianity.

In the second period of this activity (the sixth through eighth centuries), these Armenian translators, also called the Hellenophile school, expanded the limits of their interests and, according to the classification of secular scholarship in antiquity, began an additional series of translation of works of Greek authors on grammar, rhetoric and philosophy. The Hellenophiles worked on terminology, creating new scientific Armenian terms according to the Greek models. This made possible, at the end of the fifth century, the translation into Armenian of the most complicated treatises on philosophy and the natural sciences, such as Aristotle's *Categories* and *Peri Armenias*, at the beginning of the sixth century, Plato's natural-philosophical works, among them the *Timaeus* and in the second half of the sixth century, *On the Nature of Man*, attributed to Zeno, as well as Pseudo-Aristotle's *On the World*, *On*

Virtue and other works. Unfortunately, the special medical works of Greek authors, and especially of Hippocrates and Galen, reached us in manuscripts in a fragmentary fashion (Vardanian 1993). For example, codex 266 of the Yerevan Mashtots Matenadaran, written by the fifteenth-century Armenian physician Amirdovlat Amasiatsi, contains an extract from Hippocrates's *Prognosticon* which begins with a legend concerning the great physician's death (Eganian 1965). In this codex there is also another fragment attributed to Galen: *On the Symptoms of Ailments*, as well as *The Galen Dictionary*. As the study of John Greppin (1985) has shown, the latter is a dictionary of names and medicaments from Galen's book *de Simplicium Medicamentorum Temperamentis et Facultatibus*. It was probably compiled at the time of activity of the Hellenophile school of translators, not later than the end of the seventh century.

There are other fragments of the works of Greek physicians in codex 6869 of the Yerevan Mashtots Matenadaran: *On the Nature of Man, On the Four Natures of Man, the Year and Month*, and *On the Nature of the Soul*, attributed to Asclepiades (Eganian 1965). In this codex there is also an extract from the work of a Roman physician, Democrates. The author, using the question-and-answer method, discussed the growth of the fetus during the intrauterine period and growth after birth. In the same codex we find also extracts from the works attributed to the famous Roman physician of the late Hellenistic period (fourth century) Oribasius: *On the Nature of Children, On the Nature of Youth, On the Nature of Old Age*. The language and terminology of all these fragments, as that of *Galen Dictionary*, suggest that they too were very likely translated at the same time as the *Timaeus*.

At the beginning of the eighth century the Armenian scholar Stepanos Synetsi, together with Davit Hypatos, translated the book of the fourth-century Greek natural philosopher Nemesius of Emesa *On the Nature of Man* (1882) and the *Anatomy* of Gregory of Nyssa. These works, in which questions on human anatomy, physiology, and psychology were discussed in the spirit of Plato, Aristotle, and Galen, were widely known in medieval Armenia. Traces of their influence can very clearly be observed in the works of Mkhitar Heratsi, Grigor Tatevatsi and other later Armenian physicians and natural philosophers.

Thus, for three centuries (fifth through seventh centuries), intensive work was conducted by early Armenian scholars to adopt and creatively transform the cultural heritage and traditions of antiquity. Later on it stimulated the Armenian Renaissance (eleventh through fourteenth centuries) in Ani and later in Cilicia. During this bright period of cultural development in the Armenian kingdoms of Bagratides and Rubenides-Hetumides, interest in antiquity and in the works of the ancient Greek authors was greatly strengthened. Grigor Magistros (tenth and eleventh-centuries), Hovhannes Sarkavag (1045-1129), Hovhannes Yerznkatsi (thirteenth century) and other Armenian scholars and theologians translated and often cited the ancient Greek texts, chiefly the books of Plato, Aristotle and Galen.

Here I want to dwell on the fate of one anatomical treatise of Galen, its translations and influence upon the Armenian medicine of that period. It is well known that Great Pergamer carried on the traditions of the Alexandrian school, practising dissections and vivisections. During this entire period, Alexandria was the only center where these methods were allowed, due to the old practice of mummification. Besides his books *De anatomia* and D*e usu partium corporis humani,* Galen wrote a treatise dedicated to the description of dissection and vivisection methods entitled D*e anatomia mortuorum.* The original of this important text later was lost. The great sensation of the last decade was the discovery of Arab translations of Galen's text in two manuscripts of the Egyptian National Library in Cairo by the Hungarian scholar Ishtván Ormos (Ormos 1993).

It is very likely that there were other translations of Galen's texts in various languages, including Classical Armenian. Though among the works of the Hellenophile translators' school there is no such treatise, its traces can still be seen in the works of authors of the Armenian Renaissance: Grigor Magistros, Hovhannes Sarkavag, Vahram Rabuni, Hovhannes Yerznkatsi and others. Indeed, L. Khachikian (1947) found and published an interesting anatomical extract from the *Homilies* of Hovhannes Yerznkatsi, in which the latter said: "The experienced and wise physician who wishes to study [the human body] and the state of its joints, nerves, vessels and internal organs, takes the criminal sentenced to death and kills him, causing various agonies, and thus at the cost of one man's suffering he helps many people" (Khachikian 1947). In 1962 another anatomical excerpt of the same character was revealed in the work of Vahram Rabuni: *Commentaries on Anatomy* by Grigor of Nyssa (Grigorian 1962:294). In 1967 and 1977, P. Antabian found an interesting excerpt in the works of the noted thirteenth-century author Vardapet

Vanakan in the form of question-and-answer: "Question: How does [the physician] learn medicine? Answer: By dissecting [the body] or by giving wine to the hungry [criminal] sentenced to death and then cutting his body and observing how [the wine] boils in the vessels and how [the blood] moves" (Antabian 1977). L. Khatchikian and the other scholars mentioned above interpreted this data as evidence of the existence of dissections and vivisections in the medical schools (so-called *bzhshkanots*) of Cilician Armenia. This hypothesis was accepted by the historians of Armenian medicine without objection. In the light of new findings this hypothesis revealed some weak spots. First of all, it is well known that after the Hellenistic Alexandrian period the practice of dissections and vivisections had ceased in Christian Europe and in the Muslem East (Siraisi 1990: 78-114). Even during the Renaissance the state and religious attitude towards vivisections was very negative. No doubt such an attitude existed also in Cilician Armenia during the eleventh through fourteenth centuries. So it is more probable to suggest that these fragments reflected not the living practice of Cilician *bzhshkanots* but the old Alexandrian tradition. Moreover, Armenia and Cilicia were never mentioned in these fragments. Besides, the fragment from Vahram Rabuni's *Commentaries* has an evident bookish character. This can be said also about the fragment revealed in *Homilies* of Hovhannes Yerznkatsi, in which ancient Greek authors, especially Galen, were often cited. On the other hand, our comparison of these anatomical fragments with the Arab version found by I. Ormos shows their close relationship. Now there is no doubt that all these Armenian authors of the eleventh through thirteenth centuries cited Galen's treatise D*e anatomia mortuorum*. We can even suppose that in the Cilician period the Greek text was translated by one of these authors. The further study of medical, philosophical and theological manuscripts of that period could reveal other Armenian versions or fragments of Galen's texts, the study of which L. Khachikian began fifty years ago.

In the manuscript collection of the Matenadaran, a special place is occupied by ancient Armenian translations of the works of Syrian scholars. We must mention that rich cultural relations existed between Armenia and Syria. A valuable contribution to their strengthening was made by the creator of the Armenian alphabet, Mesrop Mashtots and the Hellenophile translators school (fifth through eighth centuries). Following this, further social, political, religious and intellectual relations developed. The study of the history of medieval Armenian medicine has revealed Armeno-Syrian scientific connections from the end of the tenth century, but, undoubtedly, these links existed even earlier. For example, in one of the most ancient Armenian medical works *The Book of Gagik-Hetum*, which was written at the time of Ibn Sīnā's *Canon* in the medical school of Ani, the capital of the Armenian Bagratids Kingdom, a Syrian physician, 'Isá, was mentioned. This 'Isā was to cure Grigor, the son of the famous Vahram Pahlavuni, the supreme military commander (*sparapet*) at the court of the Armenian king Gagik (990-1020) (Hovannisian 1946-1947).

These contacts were especially intensive in the Armenian kingdom of Cilicia (eleventh through fourteenth centuries), which, after the fall of Ani (1045), became the center of Armenian medical schools, where Armenian, Syrian and Greek physicians lived and worked side by side. These cultural links between Armenia and Syria, which reached their peak in the twelfth and thirteenth centuries, were encouraged not only by Mkhitar Heratsi, the founder of the Armenian medical school in Cilicia, and the Syrian physicians Abū Sa'īd, Ishokh, and Abū al-Faraj, but also by such leading Armenian writers as Nerses Shnorhali (1102-1173) and Nerses Lambronatsi (1153-1198) (Alishan 1873:120; Hovannisian 1946-1947).These Armenian translations of medical and natural-philosophical treatises by Syrian physicians of the twelfth and thirteenth centuries, which come down to us in the manuscripts of the thirteenth through seventeenth centuries, are of great interest. Among them are the manuscripts of Abū Sa'īd's work *On the Structure of the Human Body* and Ishokh's *Book of Nature* (Vardanian 1974, 1979, 1982).

Information about Abū Sa'īd, the Arab physician, is rare in medieval literature. The exact dates of his birth and death are not known, but judging from his relations with Nerses Shnorhali and Nerses Lambronatsi, it may be concluded that Abū Sa'īd was born in the first quarter of the twelfth century and reached a ripe old age. According to manuscript sources he was the contemporary of Mkhitar Heratsi. Besides, Abū Sa'īd was generally recognized not only as a physician but also as one versed in many branches of natural philosophy. Nerses Shnorhali, the Armenian poet, musician and philosopher, often appealed to him in disputed matters. In the literary sources we find the following note: "He (Nerses) also asked Abū Sa'īd for the origin of the name of his native town, Edessa, on which he (Nerses) was to write his famous *Lamentation*" (Alishan 1873: 120). Relations between Abū Sa'īd and Nerses Lambronatsi were also close. Their intimacy is confirmed by the fact that *The Names of City Builders*, by Nerses Lambronatsi, was written at Abū Sa'īd's suggestion. Moreover, in the list of works by Nerses Lambronatsi there is a book entitled *Anatomy*, which unfortunately has been lost. G. Hovnanian (1897: 491-504) and V. Torgomian (1892), historians of Armenian medicine, supposed that it was Abū Sa'īd's book *On the Structure of the Human Body*, the first editor and translator of which was Nerses Lambronatsi.

Abū Sa'īd's work *On the Stucture of the Human Body* maintained the traditions of ancient physicians such as Hippocrates, Galen, and such later representatives of Hellenistic medicine as Nemesius of Emesa and Gregory of Nyssa. Although it was written when Islamic medicine flourished, the names of Arab physicians, even Ibn Sīnā, were not mentioned in the text. The copies of Abū Sa'īd's book are to be found in many manuscript collections e.g., Yerevan Mashtots Matenadaran alone, there are thirty-nine copies of the work of Abū Sa'īd in three editions (Eganian 1970). The first edition probably belonged to Nerses Lambronatsi (*Mss.* 549, 1978, 2448, 8397, etc.). The editor of the second was the well-known Armenian physician of the sixteenth and seventeenth centuries Asar Sebastatsi (*Mss.* 1814, 3276, 4268, 6644, etc.).

The necessity of the second edition of Abū Sa'īd's work was explained in the following memorial note of the manuscript copied in 1625 in Isfahan: "So, brothers, the original text was very short and marred by mistakes, but with God's help, the natural philosopher Asar Sebastatsi, who studied the best books and assiduously examined foreign sources, rewrote [the present work] with all the necessary precision." Asar Sebastatsi not only corrected a number of mistakes, which had in time slipped into Abū Sa'īd's book, but he also added the chapters on the structure of the eye from Mkhitar Heratsi's treatise on ophthalmology. As the later works of Mkhitar were lost, this inclusion by Asar greatly helped the historians of Armenian medicine to collect the relics of the lost works of the Great Mkhitar, as he was called by his contemporaries and followers.

The short edition of Abū Sa'īd's book was called *Extractions from the Book of the Wise: Busayid on the structure of the Human Body.* Here we see that the author's name was also shortened, from Abū Sa'īd to Busayd. As the fragment *On the Eye*, by Mkhitar is missing, it must have preceded the edition by Asar. We have no information about the editor of the short version; he may have been an Armenian physician, probably a pupil of Mkhitar. The popularity of the book *On the Structure* *of the Human Body*, one of the first anatomical manuals in Armenian, created a need for a shorter version for students in medical schools.

The work of Abū Sa'īd summarized knowledge on the structure of the human body in medieval Armenian medicine. Naturally it was based on the achievements of ancient medicine. Indeed, in a number of cases, the author quoted Hippocrates, Aristotle, and especially Galen. But from our point of view, it would be a mistake to consider the book of Abū Sa'īd only as a translation or reproduction of Galen's extensive *De anatomica*. The study of the three editions of Abū Sa'īd's book enables us to evaluate its importance in the history of Armenian and Arabic medicine. L. Hovhannisian, the author of the voluminous *History of Medicine in Armenia* (1946-47) writes that Abū Sa'īd's treatise is an "extracted reproduction of all that was known at that time about the structure and function of the human organism."

Armenians were equally interested in the works of Ishokh (or, in another transcription, 'Isá), another Syrian physician. G. Zarbhanalian supposed that Ishokh and the Syrian writer Ebed Yeshu or Abdisho Bar-Brika (thirteenth and fourteenth centuries) are identical (Zarbhanalian 1839: 484). But from our point of view, the hypothesis of the editor of the Armenian version of the *Chronicle* by Michael the Syrian (1871: 6, 11-12) is more promising. According to the theory, Ishokh, the physician and author of the *Book of Nature* was at the same time the Syrian natural philosopher who in 1248 had translated the *Chronicle* into Classical Armenian in collaboration with the Armenian historian Vardan Areveltsi. Having sufficient knowledge of that language, he would reproduce his treatise himself though sometimes with the help of Armenian colleagues.

In the Middle Ages, Syrian scholarship, especially on medicine and the natural sciences, was well-known for its role in continuing ancient traditions (Baumstark 1922, Duval 1899, Renan 1852: 3). By means of Syrian intermediaries, the works of Plato, Aristotle, Hippocrates and Galen were translated from Greek into Syriac, thence into Arabic (Campbell 1927; 45-47). Many Syrian physicians were famous for their works on cosmography, astronomy and geography. Thus in the list of works of the Syrian physician Sergius of Reshaina, there was a special study of astronomy. The venerable Armenian *bzhshkapets* (doctors of medicine), Mkhitar Heratsi and Amirdovlat Amasiatsi also had reputations both as physicians and astronomers. Ishokh was similarly known for his great erudition. His *Book of Nature*, written in the thirteenth century, is a natural-philosophical treatise in which elements of cosmography, astronomy, geography, meteorology, chemistry, mineralogy, botany and medicine are developed.

In the *Book of Nature*, the integrated outlook characteristic of antiquity is clearly noted. The author used a synthesized philosophical approach to the study of nature which was close to the deductive method of ancient scientific thought. But at the same time, it is the characteristic of the writer that he aspired to a particular consideration of natural phenomena. All this is reflected in the full title of his treatise: *The Book of General and Particular Nature.* Although Ishokh's world outlook was limited by Christian dogma, it evidently displayed pantheistic features peculiar to antiquity and especially for Neoplatonic philosophy. He writes: "We consider Nature the cause of universal Harmony, moving the celestial sphere" (Vardanian 1979).

Such an approach to natural phenomenon has determined the composition and structure of The *Book of Nature* itself, which is not divided into separate chapters. This treatise primarily discusses the following problems: 1. the geography and climate of the seven zones on the earth; 2. the composition of the seven heavenly bodies (Sun, Moon, Mercury, Venus, Mars, Jupiter and Saturn) and the movements; 3. the origin of minerals and their classification; 4. questions of propagation of plants, their classification and medicinal applications; 5. a study of meteorological phenomena (rain, snow, wind, heat, cold, etc.); 6. a classification of man's ethnic types depending on climatic zones; 7. a study of human nature (anatomy, physiology, embryology and psychology).

Ishokh, in dealing with these problems, used the theories of ancient scholars as a basis. Although among the ancient authors only the names of Aristotle and Hermes Trismegistus were mentioned, the ideas of other Greek philosophers appear on many pages of this treatise. Questions of anatomy, physiology and embryology are considered very much in the spirit of Galen and his successors (Gregory of Nyssa, Abū Sa'īd). Ishokh, when considering questions of embryology, dwelled on the processes of fecundation, and growth and development of the fetus. He pondered on the question of sterility which also interested Ibn Sīnā. Ishokh writes: "There are many causes of sterility. Some women are deprived of a uterus by nature; sterility arises after diseases and because of male and female frigidity" (Vardanian 1979). The author of The *Book of Nature* displayed a keen interest in the problems of phytotherapy. He described the medicinal properties of some trees and plants, such as turpentine, camphor, oak, olive, saffron and sweet violet, as well as vegetables and certain Cilician fruits. Many of them are still used in folk medicine.

Although The *Book of Nature* is not divided into chapters, according to tradition, at the end of the treatise three additional chapters "On Animals," "On Tastes" and "On Colors" were added. The first two, in some manuscripts, were ascribed to Ishokh, while there was no such indication for the third. According to our findings, the chapter "On Colors" is a fragment of an ancient Armenian translation of Plato's *Timaeus* (Plato 1877: 142-143). As for the chapters "On Animals" and "On Tastes," the author of which was undoubtedly Ishokh, "On Animals" supplemented the picture of the organic world given in The *Book of Nature*, while in the other, the physiology of taste and problems of diet are discussed.

The Book of Nature, like Abū Sa'īd's *Anatomy,* was very popular in medieval Armenian literature. There are 26 copies of Ishokh's treatise in the manuscripts of Yerevan Mashtots Matenadaran (*Mss.* 745, 1713, 1751, 4268, etc.). They are also to be found in the collections of Armenian manuscripts in Venice, Vienna and Jerusalem.

Studies of the works of Syrian physicians by scholars of Armenian medicine (V. Torgomian, G. Hovnanian, L. Hovhannisian), beginning from the end of the nineteenth century, have now been completed with the publication of Abū Sa'īd's treatise *On the Structure of the Human Body* (Vardanian 1974) and Ishokh's *The Book of Nature* (Vardanian 1979). Since the Syrian manuscripts of these treatises are lost, their ancient Armenian translations now acquire the value of originals.

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